

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Shinsuke OKADA Confirmation No.: 3854
Serial No : 10/771,403 Examiner: Matthew J. Kasztejna
Filed : February 5, 2004 Group Art Unit: 3739
For : OBJECTIVE LENS UNIT FOR ENDOSCOPE

AMENDMENT UNDER 37 C.F.R. § 1.116

Commissioner for Patents
U.S. Patent and Trademark Office
Customer Service Window, Mail Stop Amendment DO NOT ENTER
Randolph Building
401 Dulany Street /Matthew Kasztejna/ 03/05/2008
Alexandria VA 22314

Sir:

In response to the outstanding Official Action of November 26, 2007, in which a three-month shortened statutory period for response was set to expire on February 26, 2008, Applicant respectfully requests reconsideration and withdrawal of each of the outstanding rejections set forth in the above-mentioned Official Action in view of the herein contained amendments and remarks:

AMENDMENTS to the claims begin on page 2 of this response.

REMARKS begin on page 5 of this response:

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) An objective optical system configured to be implemented in a tip of an endoscope, the system comprising:

a first lens unit having a first lens barrel and a first optical system including a plurality of lens elements assembled in said first lens barrel and aligned in a direction of a first common optical axis; and

a second lens unit having a second lens barrel, engageable with said first lens barrel, and a second optical system including a plurality of lens elements aligned in a direction of a second common optical axis,

wherein, when the first lens barrel is engaged with the second lens barrel, the lens elements of the first and second lens barrels are aligned along a common axis, the first common axis and the second common axis comprising the common axis

wherein said first lens unit includes an alignment lens movable in a direction perpendicular to an optical axis thereof, said first lens barrel being formed with a plurality of holes through which parts of a circumferential surface of said alignment lens are exposed, said alignment lens is movably accommodated in said first lens barrel, and said alignment lens is moved by pins inserted through said plurality of holes, respectively.

2. (Previously Presented) The objective optical system according to claim 1, wherein said first lens unit is provided with a fixing unit that fixes said first optical system to said first lens barrel, said second lens barrel being assembled to said first lens barrel, said fixing unit being interposed between said first lens barrel and said second lens barrel to define a clearance therebetween.

3-5 (Canceled)

6. (Currently Amended) The objective optical system according to claim 3 1, wherein said alignment lens is more sensitive to an alignment error than all of the plurality of lens elements included in said first optical system.

7. (Currently Amended) The objective optical system according to claim 3 1, wherein said alignment lens is more sensitive to an alignment error than all of the lens elements included in said objective optical system.

8. (Original) The objective optical system according to claim 7, wherein said alignment lens is a cemented lens.

9. (Original) The objective optical system according to claim 1, wherein said first lens barrel is attached to said second lens barrel by a screw connection.

10. (Currently Amended) A method of assembling an objective optical system that is configured to be implemented in a tip of an endoscope, the method comprising:

forming a first optical system by assembling a first plurality of lenses in a first lens barrel such that the first plurality of lenses are aligned in a direction of a first common optical axis, the first lens barrel being formed with a plurality of holes on a circumferential surface thereof, the plurality of holes allowing access to a predetermined one of the first plurality of lenses in the first lens barrel and through which parts of a circumferential surface of the predetermined one of the first plurality of lens are exposed;

forming a second optical system by assembling a second plurality of lenses in a second lens barrel which is to be coupled to the first lens barrel such that the second plurality of lenses are aligned in a direction of a second common optical axis;

inserting rods through the plurality of holes to move the predetermined one of the first plurality of lenses in the first lens barrel to adjust an alignment thereof in a direction perpendicular to an optical axis thereof;

fixing the predetermined one of the first plurality of lenses to the first lens barrel;
and

coupling the first lens barrel and the second lens barrel such that the first optical system and the second optical system have a common optical axis, and the first plurality of lenses and the second plurality of lenses are aligned along the common optical axis

11. (Previously Presented) The objective optical system according to claim 1, wherein a threaded portion is provided on an inner surface of the first lens barrel which engages with a screw provided on an outer surface of the second lens barrel.

REMARKS

Upon entry of the present amendment claims 1 and 10 will have been amended to incorporate therein the recitations of claims 3-5, which will have been canceled. Additionally, the dependency of claims 6 and 7 will have been revised in view of the cancellation of claim 3.

In view of the herein contained amendments and the remarks to follow, Applicant respectfully requests reconsideration and withdrawal of each of the outstanding rejections set forth in the above-mentioned Official Action. Such action is now believed to be appropriate and proper and is thus respectfully requested.

Applicant notes that the status of the present application is after final rejection and that an Applicant is not entitled, as a matter of right, to amend an application once a final rejection has been issued by the Patent and Trademark Office. Nevertheless, Applicant respectfully submits entry of the present amendment is appropriate and proper and in full accordance with 37 C.F.R. § 1.116.

In particular, by incorporating the limitations of claims 3-5 into independent claim 1, no new issues requiring further consideration or search have been raised since the Examiner has already considered these claims in the outstanding Official Action. Similarly, the amendment of method claim 10 also incorporates therein appropriately worded features of previously pending claims 3-5, that were not previously contained therein. Accordingly, the amendment of claim 10 also does not raise any new issues requiring further consideration or search. Moreover, by canceling a number of claims,

the present amendment clearly simplifies the issues for appeal and, as will be shown hereinbelow, clearly places the present application in condition for allowance.

In the outstanding Official Action, the Examiner rejected claims 1-2 and 6-11 under 35 U.S.C. § 102(a) as being anticipated by TSUYUKI et al. (U.S. Patent No. 5,547,457). Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over TSUYUKI et al. in view of WATANABE et al. (U.S. Patent No. 6,695,775). Applicant respectfully traverses each of the above noted rejections and submits that they are inappropriate with respect to the combinations of features recited in each of Applicant's presently pending claims.

In setting forth the rejection of claims 4 and 5, the features of which have now been incorporated into each of the independent claims, the Examiner admitted that TSUYUKI et al. does not contain a disclosure regarding an alignment lens being moved by alignment pins. However the Examiner relied on WATANABE et al. for this feature. However, Applicant respectfully submits that the Examiner's interpretation of the WATANABE et al. reference is incorrect.

In this regard, Applicant respectfully notes that claim 1 recites the alignment lens as "movable in a direction perpendicular to the optical axis thereof". It is respectfully submitted that the WATANABE reference does not disclose a lens movable in a direction as recited in Applicant's claims. In setting forth the rejection, the Examiner directs Applicant's attention to figures 5 and 10. However, as can clearly be seen in each of these figures, what is shown therein is a jig for "aligning optical axes of the first and second lens elements" (col. 5 lines 21-23 and 36-39). This is rather distinct from the

alignment lens recited in Applicant's claim 1 that is "movable in a direction perpendicular to the optical axis thereof".

Further, in setting forth the rejection, the Examiner additionally directs Applicant's attention to column 7, line 55 through column 8, line 60. However this portion of WATANABE et al. also does not support the Examiner's interpretation thereof with respect to the features of Applicant's claims. In particular, at column 7, line 57 WATANABE et al. explicitly discloses that it is necessary to adjust the optical axes of the two lenses precisely into alignment with each other. Accordingly, WATANABE et al. contains no teaching or disclosure of a lens that is movable in a direction perpendicular to the optical axis thereof.

Moreover, claim 1 additionally recites that the first lens barrel includes a plurality of holes through which parts of a circumferential surface of the alignment lens are exposed and that the alignment lens is moved by pins inserted through the plurality of holes. It is respectfully submitted that these additional features are also not taught, disclosed or rendered obvious by WATANABE et al. For this additional reason it is respectfully submitted that the claims in the present application are clearly patentable over any proper combination of TSUYUKI et al. and WATANABE et al.

Accordingly, Applicant respectfully submits that the claims in the present application are clearly patentable over the disclosure of the references cited by the Examiner even assuming, for arguments sake, that the Examiner's proposed combination is appropriate. Accordingly, Applicant respectfully requests reconsideration of each of the outstanding rejections together with an indication of the allowability of all the claims pending in the present application, in due course.

SUMMARY AND CONCLUSION

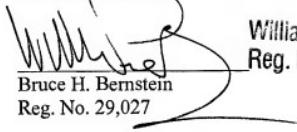
Applicant has made a sincere effort to place the present application in condition for allowance and believes that he has now done so. Applicant has amended each of the independent claims to incorporate therein features from previously pending dependent claims. Applicant has additionally set forth a basis for entry of the present amendment, although the status of the present application is after final rejection.

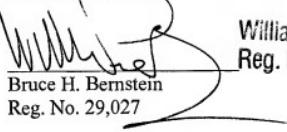
Applicant has discussed the outstanding rejections and has noted the deficiencies of the references relied upon by the Examiner. In this regard, Applicant has pointed out the explicitly recited features of Applicant's claims that are not taught, disclosed, or rendered obvious by the references relied upon by the Examiner. Accordingly, Applicant has provided a clear evidentiary basis supporting the patentability of all the claims in the present application and respectfully requests an indication to such effect, in due course.

Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions or comments regarding this response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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January 30, 2008
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